# VOLUME II INDEX


Anderson, K.W., Grulke, E., Gerhardt, P., Microfiltration culture process for enhanced production of rDNA receptor cells of Escherichia coli, 891, Oct.
Angal, S., *see* Marston, F.A.O.

Backman, K., O'Connor, M.J., Maruya, A., Erfle, M., Use of synchronous site-specific recombination in vivo to regulate gene expression 1045, Dec.
Bailey, C.R., Butler, M.J., Normansell, I.D., Rowlands, R., Winstanley, D.J., Cloning a Streptomyces clavuligerus genetic locus involved in clavulanic acid biosynthesis, 808, Sept.
Baldini, M.M., *see* Kaper, J.B.
Barstow, L.E., Automated chemical synthesis of peptides and DNA fragments, 445, May
Bauman, N., Experts question Soviet biowar build-up, 749, Sept.
Ben-Bassat, A., *see* Emerick, A.W.
Benner, R., *see* Kerr, T.J.
Bennett, W.F., *see* Vehar, G.A.
Berman, P.W., *see* Lasky, L.A.
Berridge, M.J., Oncogenes, inositol lipids and cellular proliferation 541, June
Bertolani, B.L., *see* Emerick, A.W.
Bevan, M., *see* Helmer, G.
Bialy, H., Bacterial fitness and genetic engineering, 239, Mar.
— Construction of a live oral cholera vaccine, 334, Apr.
— The molecular biology of cancer, 848, Oct.
Blaine, L., A data bank on cloned cell lines and their immunoreactive products, 338, Apr.
Bloecker, H., Frank, R., 'Gene machines' and a new approach 694, Aug.
Bloemers, H.P.J., Enhancers and other regulators of eukaryotic gene expression: a first account, 173, Feb.
Bonner, J., More amino acids produced from whey, 592, July
Bourne, J.R., *see* Prenosil, J.E.
Bowden, D.W., *see* Braman, J.C.
Braman, J.C., Broeze, R.J., Bowden, D.W., Myles, A., Fulton, T.R., Rising, M., Thurston, J., Cole, F.X., Vovis, G.F., Enzyme membrane immunoassay (EMIA), 349, Apr.
Breeze, P., Monsanto supports oligosaccharide research, 8, Jan.
Brewer, S.J., *see* Sassenfeld, H.M.
Brind, J., The dangers of nitro compounds, 1005, Dec.
Broeze, R.J., *see* Braman, J.C.
Brouty-Boye, G.C., Maman, M., Marian, J-C., Choay, P., Biosynthesis of human tissue-type plasminogen activator by normal cells, 1058, Dec.
Brown, Rep. G.E., Time to educate legislators and voters, 1000, Nov.
Bryan, J., British drug giants move into biotech, 388, May
— Home pregnancy tests use monoclonal antibodies, 398, May
Bryant, R.S., Reports of its death were exaggerated, 1005, Dec.
Buckland, B.C., The translation of scale in fermentation processes: the impact of computer process control, 875, Oct.
Bull, D.N., Fermentation manual fizzles, 475, May
Butler, M.J., *see* Bailey, C.R.
Calton, G.J., *see* Wood, L.L.
Cantley, M., Sargeant, K., Letter, 61, Jan.
Cape, R.E., International competitiveness in biotech, 566, June
— On deserving awe and envy, 912, Oct.
Capon, D.J., *see* Leung, D.W.
Carter, T., Business tailored to national needs, 693, Aug.
Casadaban, M., *see* Helmer, G.F.
Chantal, D., Chilton, M-D., Tempe, J., Conservation of tDNA in plants regenerated from hairy root cultures, 73, Jan.
Chilton, M-D., *see* Helmer, G.
— *see* Hood, E.E.
— *see* Chantal, D.
Choay, P., *see* Brouty-Boye, G.C.
Cole, F.X., *see* Braman, J.C.
Collen, D., *see* Vehar, G.A.
Compton, J.L., Nitrogen fixation in context, 821, Sept.
Cooney, J.M., Chromatographic gel media for large scale purification 41, Jan.
Cooper, I.P., Do we need a special patent law for biological inventions?, 192, Feb.
Crafts-Lighty, A., Genetic engineering and biotechnology firms 475, May
Curtin, M.E., Biological replacement parts, 131, Feb.

Datar, R., MCAs, separations, and biotechnology's future, 555, June
DeBenedict, C., *see* Yokoyama, H.
Demain, A.L., India meeting discrimination, 733, Sept.
— *see* Wolfe, S.
DeMiguel, E., *see* Paice, M.G.
Desrochers,M., *see* Paice, M.G.
Dixon, B., The industrial revolution in monoclonals, 26, Jan.
— Waste hay becomes resource, thanks to microbial partners 110, Feb.
— New viral weapons against plant infections, 202, Mar.
— Putting sticky bugs to work, 288, Apr.
— Citobacter for control of cadmium, 382, May
— Biotechnology stressed at 100th SGM meeting, 508, June
— A clever twist on conventional microbiology, 560, June
— Biotechnology and the population problem, 586, July
— Finns use cellulase to increase alcohol production 592, July
— Co-immobilization speeds lactose breakdown, 594, July
— Chemicals from algae and plant tissue, 665, Aug.
— Symbiotes free more nitrogen for rice, 740, Sept.
— Self-defense for yeast, 847, Oct.
— A new phase in fermentation, 839, Oct.
— U.K. starts cell bank, 850, Oct.
— Current thoughts on microbial fuel cells, 921, Nov.
— New uses for synthesis gas, 935, Nov.
— Charged up over chemical fuel cells, 935, Nov.
— Improving morels via genetic engineering, 936, Nov.
— Monitoring fermentation by heat, 936, Nov.
— Gliding bacteria and adherent antibiotics, 1009, Dec.
— Celltech, Sankyo agree on tumor agents, 1021, Dec.
Doel, M.T., *see* Marston, F.A.O.
Dowbenko, D., *see* Lasky, L.A.
Dunn, I.J., Anaerobic waste water treatment, 143, Feb.
— New technologies for fermentation, biological conversion 555, June
Dwyer, J.L., Scaling up bio-product separation with high performance liquid chromatography, 957, Nov.
Dwyer, P., NSF evaluating biotech funding, 396, May
— White House joins the regulation dispute, 502, June

Edlin, G., Tait, R.C., Rodriguez, R.L., A bacteriophage lambda cohesive ends (cos) DNA fragment enhances the fitness of plasmid-containing bacteria growing in energy-limited chemostats, 251, Mar.
Edwards, C., Four Great Myths About Japanese Biotech, 7, Jan.
— Industry should collaborate on scale up problems 109, Feb.
— Five industrial imperatives, 200, Mar.
— Elkington, J., Murray, A., Japan taps into new biotech 307, Apr.
— Solving regional development problems with biotech: essential issues, 287, Apr.
Elkington, J., *see* Edwards, C.
Elmerich, C., Molecular biology and ecology of diazotrophs associated with non-leguminous plants, 967, Nov.
Emerick, A.E., Bertolani, B.L., Ben-Bassat, A., White, T.J., Konrad, M.W., Expression of beta-lactamase preproinsulin fusion protein in Eschericia coli, 165, Feb.
Engel, J., Controversy erupts over Canadian biotech invention 124, Feb.
Erfle, M., *see* Backman, K.
Evans, D.A., *see* Sondahl, M.R.

Fish, N.M., Lilly, M.D., The interactions between fermentation and protein recovery, 623, July
Fraley, R.T., *see* Hood, E.E.
Franceschini, T., *see* Morinaga, Y.
Frank, R., *see* Bloecker, H.
Frej, A-K., Gustafsson, J-G., Hedman, P., FPLC for monitoring microbial and mammalian cell cultures, 777, Sept.
Friebel, T.E., Patenting biotechnology, 991, Nov.
Fulton, T.R., *see* Braman, J.C.

Genung, R.K., Multidisciplinary approaches to biomass, 783, Sept.
Gerhardt, P., *see* Anderson, K.W.
Gil, J.A., *see* Martin, J.F.
Gilkes, N.R., Kilburn, D.G., Miller, R.C., Warren, R.A.J., A mutant of Escherichia coli that leaks cellulase activity encoded by cloned cellulase genes from Cellulomona fimi, 259, Mar.
Glaser, V.P., Dental gene cloned; may lead to better fillings and teeth, 116, Feb.
— Stand-ins for1 blood, 130, Feb.
— Researchers seek better corn through tissue culture 203, Mar.
— Gutterman talks about the trials, 227, Mar.
Glassman, D.L., *see* Pilacinski, W.P.
Glick, L.J., Export control of biotechnology, 280, Mar.

# VOLUME II INDEX


Anderson, K.W., Grulke, E., Gerhardt, P., Microfiltration culture process for enhanced production of rDNA receptor cells of Escherichia coli, 891, Oct.
Angal, S., *see* Marston, F.A.O.

Backman, K., O'Connor, M.J., Maruya, A., Erfle, M., Use of synchronous site-specific recombination in vivo to regulate gene expression 1045, Dec.
Bailey, C.R., Butler, M.J., Normansell, I.D., Rowlands, R., Winstanley, D.J., Cloning a Streptomyces clavuligerus genetic locus involved in clavulanic acid biosynthesis, 808, Sept.
Baldini, M.M., *see* Kaper, J.B.
Barstow, L.E., Automated chemical synthesis of peptides and DNA fragments, 445, May
Bauman, N., Experts question Soviet biowar build-up, 749, Sept.
Ben-Bassat, A., *see* Emerick, A.W.
Benner, R., *see* Kerr, T.J.
Bennett, W.F., *see* Vehar, G.A.
Berman, P.W., *see* Lasky, L.A.
Berridge, M.J., Oncogenes, inositol lipids and cellular proliferation 541, June
Bertolani, B.L., *see* Emerick, A.W.
Bevan, M., *see* Helmer, G.
Bialy, H., Bacterial fitness and genetic engineering, 239, Mar.
— Construction of a live oral cholera vaccine, 334, Apr.
— The molecular biology of cancer, 848, Oct.
Blaine, L., A data bank on cloned cell lines and their immunoreactive products, 338, Apr.
Bloecker, H., Frank, R., 'Gene machines' and a new approach 694, Aug.
Bloemers, H.P.J., Enhancers and other regulators of eukaryotic gene expression: a first account, 173, Feb.
Bonner, J., More amino acids produced from whey, 592, July
Bourne, J.R., *see* Prenosil, J.E.
Bowden, D.W., *see* Braman, J.C.
Braman, J.C., Broeze, R.J., Bowden, D.W., Myles, A., Fulton, T.R., Rising, M., Thurston, J., Cole, F.X., Vovis, G.F., Enzyme membrane immunoassay (EMIA), 349, Apr.
Breeze, P., Monsanto supports oligosaccharide research, 8, Jan.
Brewer, S.J., *see* Sassenfeld, H.M.
Brind, J., The dangers of nitro compounds, 1005, Dec.
Broeze, R.J., *see* Braman, J.C.
Brouty-Boye, G.C., Maman, M., Marian, J-C., Choay, P., Biosynthesis of human tissue-type plasminogen activator by normal cells, 1058, Dec.
Brown, Rep. G.E., Time to educate legislators and voters, 1000, Nov.
Bryan, J., British drug giants move into biotech, 388, May
— Home pregnancy tests use monoclonal antibodies, 398, May
Bryant, R.S., Reports of its death were exaggerated, 1005, Dec.
Buckland, B.C., The translation of scale in fermentation processes: the impact of computer process control, 875, Oct.
Bull, D.N., Fermentation manual fizzles, 475, May
Butler, M.J., *see* Bailey, C.R.
Calton, G.J., *see* Wood, L.L.
Cantley, M., Sargeant, K., Letter, 61, Jan.
Cape, R.E., International competitiveness in biotech, 566, June
— On deserving awe and envy, 912, Oct.
Capon, D.J., *see* Leung, D.W.
Carter, T., Business tailored to national needs, 693, Aug.
Casadaban, M., *see* Helmer, G.F.
Chantal, D., Chilton, M-D., Tempe, J., Conservation of tDNA in plants regenerated from hairy root cultures, 73, Jan.
Chilton, M-D., *see* Helmer, G.
— *see* Hood, E.E.
— *see* Chantal, D.
Choay, P., *see* Brouty-Boye, G.C.
Cole, F.X., *see* Braman, J.C.
Collen, D., *see* Vehar, G.A.
Compton, J.L., Nitrogen fixation in context, 821, Sept.
Cooney, J.M., Chromatographic gel media for large scale purification 41, Jan.
Cooper, I.P., Do we need a special patent law for biological inventions?, 192, Feb.
Crafts-Lighty, A., Genetic engineering and biotechnology firms 475, May
Curtin, M.E., Biological replacement parts, 131, Feb.

Datar, R., MCAs, separations, and biotechnology's future, 555, June
DeBenedict, C., *see* Yokoyama, H.
Demain, A.L., India meeting discrimination, 733, Sept.
— *see* Wolfe, S.
DeMiguel, E., *see* Paice, M.G.
Desrochers,M., *see* Paice, M.G.
Dixon, B., The industrial revolution in monoclonals, 26, Jan.
— Waste hay becomes resource, thanks to microbial partners 110, Feb.
— New viral weapons against plant infections, 202, Mar.
— Putting sticky bugs to work, 288, Apr.
— Citobacter for control of cadmium, 382, May
— Biotechnology stressed at 100th SGM meeting, 508, June
— A clever twist on conventional microbiology, 560, June
— Biotechnology and the population problem, 586, July
— Finns use cellulase to increase alcohol production 592, July
— Co-immobilization speeds lactose breakdown, 594, July
— Chemicals from algae and plant tissue, 665, Aug.
— Symbiotes free more nitrogen for rice, 740, Sept.
— Self-defense for yeast, 847, Oct.
— A new phase in fermentation, 839, Oct.
— U.K. starts cell bank, 850, Oct.
— Current thoughts on microbial fuel cells, 921, Nov.
— New uses for synthesis gas, 935, Nov.
— Charged up over chemical fuel cells, 935, Nov.
— Improving morels via genetic engineering, 936, Nov.
— Monitoring fermentation by heat, 936, Nov.
— Gliding bacteria and adherent antibiotics, 1009, Dec.
— Celltech, Sankyo agree on tumor agents, 1021, Dec.
Doel, M.T., *see* Marston, F.A.O.
Dowbenko, D., *see* Lasky, L.A.
Dunn, I.J., Anaerobic waste water treatment, 143, Feb.
— New technologies for fermentation, biological conversion 555, June
Dwyer, J.L., Scaling up bio-product separation with high performance liquid chromatography, 957, Nov.
Dwyer, P., NSF evaluating biotech funding, 396, May
— White House joins the regulation dispute, 502, June

Edlin, G., Tait, R.C., Rodriguez, R.L., A bacteriophage lambda cohesive ends (cos) DNA fragment enhances the fitness of plasmid-containing bacteria growing in energy-limited chemostats, 251, Mar.
Edwards, C., Four Great Myths About Japanese Biotech, 7, Jan.
— Industry should collaborate on scale up problems 109, Feb.
— Five industrial imperatives, 200, Mar.
— Elkington, J., Murray, A., Japan taps into new biotech 307, Apr.
— Solving regional development problems with biotech: essential issues, 287, Apr.
Elkington, J., *see* Edwards, C.
Elmerich, C., Molecular biology and ecology of diazotrophs associated with non-leguminous plants, 967, Nov.
Emerick, A.E., Bertolani, B.L., Ben-Bassat, A., White, T.J., Konrad, M.W., Expression of beta-lactamase preproinsulin fusion protein in Eschericia coli, 165, Feb.
Engel, J., Controversy erupts over Canadian biotech invention 124, Feb.
Erfle, M., *see* Backman, K.
Evans, D.A., *see* Sondahl, M.R.

Fish, N.M., Lilly, M.D., The interactions between fermentation and protein recovery, 623, July
Fraley, R.T., *see* Hood, E.E.
Franceschini, T., *see* Morinaga, Y.
Frank, R., *see* Bloecker, H.
Frej, A-K., Gustafsson, J-G., Hedman, P., FPLC for monitoring microbial and mammalian cell cultures, 777, Sept.
Friebel, T.E., Patenting biotechnology, 991, Nov.
Fulton, T.R., *see* Braman, J.C.

Genung, R.K., Multidisciplinary approaches to biomass, 783, Sept.
Gerhardt, P., *see* Anderson, K.W.
Gil, J.A., *see* Martin, J.F.
Gilkes, N.R., Kilburn, D.G., Miller, R.C., Warren, R.A.J., A mutant of Escherichia coli that leaks cellulase activity encoded by cloned cellulase genes from Cellulomona fimi, 259, Mar.
Glaser, V.P., Dental gene cloned; may lead to better fillings and teeth, 116, Feb.
— Stand-ins for1 blood, 130, Feb.
— Researchers seek better corn through tissue culture 203, Mar.
— Gutterman talks about the trials, 227, Mar.
Glassman, D.L., *see* Pilacinski, W.P.
Glick, L.J., Export control of biotechnology, 280, Mar.

Goeddel, D.V., *see* Leung, D.W.
Goldstein, J.A., Copyrightability of genetic works, 138, Feb.
Gray, G.L., McKeown, K.A., Jones, A.J.S., Seeburg, P.H., Heyneker, H.L., Pseudomonas aeruginosa secretes and correctly processes human growth hormone, 161, Feb.
Greenlee, R., *see* Kohno, T.
Gregg, C.T., *see* Salzman, G.C.
Gregoriadis, G., *see* Kirby, C.
Grill, L.K., Plant viruses and subviral agents, 86, Jan.
Gross, M., Biotechnology: the regulatory revolution, 342, Apr.
Grulke, E., *see* Anderson, K.W.
Gustafsson, J-G., *see* Frej, A-K.

Harkins, R.N., *see* Vehar, G.A.
Harris, C.W., The age of genetic engineering, 173, Feb.
Harrison, F.G., Formulating a manufacturing strategy, 616, July
Hayman, E., *see* Yokoyama, H.
Heath, T.D., Liposomes in medicine: a 15 year perspective, 146 , Feb.
Hediger, T., *see* Prenosil, J.E.
Hedman, P., *see* Frej, A-K.
Heinzle, E., Analytical methods improve process control, 786 , Sept.
Helmer, G., Casadaban, M., Bevan, M., Kayes, L., Chilton, M-D. A new chimeric gene as a marker for plant transformation: the expression of Escherichia coli beta galactosidase in sunflower and tobacco cells 520, June
Henahan, J., Biocon scientists produce heat stable enzyme from B. subtilis, 112, Feb.
Herbeck, R., Flourishing not easy, German company finds, 292, Apr.
Hesseltine, C.W., Indigenous fermented foods symposium, 364, Apr.
Heyneker, H.L., *see* Gray, G.L.
Hollander, I.J., *see* Wolfe, S.
Hood, E.E., Jen, G., Kayes, L., Kramer, J., Fraley, R.T., Chilton, M-D., Restriction endonuclease mapt of pTi Bo542, a potential Ti plasmid vector for genetic engineering of plants, 702, Aug.
Hopper, P., *see* Kohno, T.
Howell, D.G., Letter, 61, Jan.
Hsu, W-J., *see* Yokoyama, H.

Inouye, M., *see* Masui, Y.
— *see* Morinaga, Y.
Inouye, S., *see* Morinaga, Y.
Itoh, T., Trading companies have many biotech roles, 1041, Dec.

Jen, G., *see* Hood, E.E.
Jones, A.J.S., *see* Gray, G.L.

Kaper, J.B., Lockman, H., Baldini, M.M., Levine, M.M., A recombinant live oral cholera vaccine, 345, Apr.
Katchalski-Katzir, E., *see* Solomon, B.
Kayes, L., *see* Helmer, G.
— *see* Hood, E.E.
Kean, M.A., Damon Biotech's pre-public investment -- semantics and econometrics, 733, Sept.
Kerr, T.J., Windham, W.R., Benner, R., Chemical and bacterial pretreatment of lignocellulosic material to increase ruminant digestibility 805, Sept.
Kieselburg, M.K., Weickert, M., Vary, P.S., Analysis of resident and transformant plasmids in Bacillus megaterium, 254, Mar.
Kilburn, D.G., *see* Gilkes, N.R.
Kirby, C., Gregoriadis, G., Dehydration-rehydration vesicles: a simple method for high yield drug entrapment in liposomes, 979, Nov.
Kishimoto, Y., Japan's biotech shift: exploring opportunities 488, May
Klass, D.L., Energy from biomass and wastes, 434, May
Klausner, A., Analysts predicting biotech stock rises for 1984 16, Jan.
— SBIR grants going to biotech, 22, Jan.
— Who will win the race to market hapatitis B vaccine 38, Jan.
— Researchers seeking new uses for lignin, 111, Feb.
— Tech brokers focus on Japan biotech transfer, 115, Feb.
— Oncogene Science completes private stock offering, begins operations, 118, Feb.
— Stock prices of selected biotechnology specialty firms, 124, Feb.
— R&D limited partnerships may be declining, IBA meeting told, 210, Mar.
— University of Maryland dives into biotechnology 212, Mar.
— Mutual funds increasing biotech investments, 296, Apr.
— Stock prices of selected biotechnology specialty firms, 298, Apr.
— Baxter breeds biotech execs, 303, Apr.
— U.S.-Japan cooperation increasing, 323, Apr.
— Stock prices of selected biotechnology specialty firms, 403, May
— Microbial insect control: using bugs to kill bugs 408, May
— Will regulation be the biggest pest?, 415, May
— A little secrecy goes a long way, 494, June
— Flow of biotech products just a trickle?, 499, June
— Stock prices of selected biotechnology specialty firms, 502, June
— Wilson, T., Competition in the modeling market, 512, June
— DNA probe rights: a tangled web, 589, July
— Imreg's unusual alliance with Tulane, 671, Aug.
— Schools not threatened by corporate funding, 672, Aug.
— Michigan spruces up forest biotech, 673, Aug.
— Fred Adler's style of biotechnology, 674, Aug.
— R&D limited partnerships -- a fading rainbow? 676, Aug.
— The basics of R&D limited partnerships, 679, Aug.
— Hopkins lab improves hybridoma production, 743, Sept.
— Microbes to clean up marble?, 757, Sept.
— Biotech employment studies in the works, 759, Sept.
— Agriculture and supply attract biotech start-ups 774, Sept.
— Phillips: wildcatting in biotech, 853, Oct.
— IML introduces interferon product for cattle, 841, Oct.
— UGEN to acquire Trans World Genetics, 844, Oct.
— Irish eyes shine on biotech, 929, Nov.
— 'Prioritizing' biotechnology, 1007, Dec.
— Firms seek to score on protein analysis, 1011, Dec.
— RAC rejects Rifkin's gene transfer ban, 1012, Dec.
— Management shifts abound in plant genetics, 1017, Dec.
— How about contract research?, 1029, Dec.
— *see* Wilson, T.
Klotz, L.C., Is genetic engineering just another south sea bubble 104, Jan.
Kohno, T., Hopper, P., Lillquist, J.S., Suddith, R.L., Greenlee, R., Moir, D.T., Kidney plasminogen activator: a precursor form of human urokinase with high fibrin affinity, 628, July
Kohr, W.J., *see* Vehar, G.A.
Konrad, M.W., *see* Emerick, A.W.
Koppel, R., *see* Solomon, B.
Korwek, E.L., Deliberate release: a legal opinion, 728, Aug.
Kramer, J., *see* Hood, E.E.
Krimsky, S., Academics in biotechnology, 656, July
Krzyzek, R.A., *see* Pilacinski, W.P.

Lasky, L.A., Dowbenko, D., Simonsen, C.C., Berman, P.W., Protection of mice from lethal herpes simplex virus infection by vaccination with a secreted form of cloned glycoprotein D, 527, June
Ledeboer, A.M., Recombinant DNA technology, 86, Jan.
Lee, V., Creating new enzymes with chemistry, 549, June
Leff, D.N., Biobusiness world data base, 733, Sept.
Leung, D.W., Capon, D.J., Goeddel, D.V., The structure and bacterial expression of three distinct bovine interferon beta genes, 458, May
Levin, M., *see* Nicholas, R.B.
Levine, M.M., *see* Kaper, J.B.
Lillquist, J.S., *see* Kohno, T.
Lilly, M.D., *see* Fish, N.M.
Lockman, H., *see* Kaper, J.B.
Lowe, P.A., *see* Marston, F.A.O.

Maher, A.C., More about Damon's prepublic investment in Damon Biotech, 1005, Dec.
Maman, M., *see* Brouty-Boye, G.C.
Manor, A., *see* Rosenberg, E.
Mansouri, S., Schultz, J.S., A miniature optical glucose sensor base on affinity binding, 885, Oct.
Mapletoft, R.J., Embryo transfer technology for the enhancement of animal reproduction, 149, Feb.
Margaritis, A., Wallace, J.B., Novel bioreactor systems and their applications, 447, May
Marian, J-C., *see* Brouty-Boye, G.C.
Marston, F.A.O., Lowe, P.A., Doel, M.T., Schoemaker, J.M., White, S., Angal, S., Purification of calf prochymosin (prorennin) synthesized in E. coli, 800, Sept.
Martin, J.F., Gil, J.A., Cloning and expression of antibiotic production genes, 63, Jan.
Maruya, A., *see* Backman, K.
Masui, Y., Mizuno, T., Inouye, M., Novel high-level expression cloning vehicles: 104-fold amplification of Eschericia coli minor protein, 81, Jan.
McCormick, D., Understanding the media, 583, July
— Open questions in military biotech, 663, Aug.
— The real mechanism of technology transfer, 737, Sept.
— An offense against humanity, not science, 739, Sept.
— New images for old, 837, Oct.
— Methanogens may fix nitrogen, 845, Oct.

— New aids for municipal digestion, 851, Oct.
— September is the cruelest month, 919, Nov.
— Big resources for small computers, 945, Nov.
— IBA listens to calls for regulation, 1015, Dec.
— Microcomputer tools for biotechnology, 1022, Dec.
McGinity, R.C., Agricultural research and policy, 721, Aug.
McKeown, K.A., *see* Gray, G.L.
Meagher, L.R., International competition spurs commercial technology 232, Mar.
Miller, J., Canada contemplates deliberate release, 1016, Dec.
Miller, R.C., *see* Gilkes, N.R.
Mizuno, T., *see* Masui, Y.
Moir, D.T., *see* Kohno, T.
Morinaga, Y., Franceschini, T., Inouye, S., Inouye, M., Improvement of oligonucleotide-directed site-specific mutagenesis using double-stranded plasmid DNA, 636, July
Mount, D.W., Modeling RNA structure, 791, Sept.
Murray, A., Japanese researchers report on enzyme engineering 13, Jan.
— Interferon in Japan: fierce competition, 318, Apr.
— Japanese biotech regulation: more complexity, 598, July
— Biotech taking root in japanese agriculture, 603, July
— *see* Edwards, C.
Murray, D.J., O'Connor, P.J., Letter, 61, Jan.
Murray, J.R., Initial public offerings of biotech companies 1980-1983, 619, July
— 1983 financing for health applications increases over agriculture, 332, Apr.
Myles, A., *see* Braman, J.C.

Nathan, P.N., *see* Rosenberg, E.
Netzer, W.J., Appropriate bean gene expression reported, 596 , July
— Engineering herbicide resistance: When is it worthwhile? 939, Nov.
Newell, N., Congressional issues and options to improve the U.S. competitive position in commercial biotechnology, 236, Mar.
Nicholas, R.B., Levin, M., Regulation and biotechnology, 576, June
Nichols, R.W., Making a relationship work, 479, May
Normansell,I.D., *see* Bailey, C.R.

O'Connor, M.J., *see* Backman, K.
O'Connor, P.J., *see* Murray, D.J.

Paice, M.G., Desrochers,M., Rho,D., Roy,C., Rollin, C.F., DeMiguel, E., Yaguchi, M., Two forms of endoglucanase from the basidiomycete Schizopyllum cummune and their relationship to other beta-1,4-glycoside hydrolases, 535, June
Parker, H.S., Hype versus responsible disclosure, 734, Sept.
Pennica, D., *see* Vehar, G.A.
Pilacinski, W.P., Glassman, D.L., Krzyzek, R.A., Sadowski, P.L. Robbins, A.K., Cloning and expressioin in Escherichia coli of the bovine papillomavirus L1 and L2 open reading frames, 356, Apr.
Porges, A., Biotechnology trade with Japan, 327, Apr.
Porter, J.M., *see* Rosenberg, E.
Poste, G., Hype, hope and honesty, 1096, Dec.
Powledge, T., Public education urged to counter biotech critics 10, Jan.
— AGS head calls frost bug ruling 'far-fetched,' 12 , Jan.
— 'Ice minus' talks canceled after court action 204, Mar.
— Interferon on trial, 214, Mar.
— Biotechnology touches the forest, 763, Sept.
— Confronting the genetic era, 991, Nov.
Prenosil, J.E., Stuker, E., Hediger, T., Bourne, J.R., Enzymatic whey hydrolysis in the pilot plant 'lactohyd', 441, May
Prioli, L.M., *see* Sondahl, M.R.

Rho,D., *see* Paice, M.G.
Rich, V., First commercial interferon, 672, Aug.
— Biotech bright spot in Soviet industry, 672, Aug.
Rising, M., *see* Braman, J.C.
Robbins, A.K., *see* Pilacinski, W.P.
Rodriguez, R.L., *see* Edlin, G.
Rogul, M., What Rifkin really wants, 832, Sept.
Rokhsar, D.S., Cornell gets $22 million for biotech center, 1017 , Dec.
Rollin, C.F., *see* Paice, M.G.
Rosenberg, E., Porter, J.M., Nathan, P.N., Manor, A., Varon, M., Antibiotic TA: an adherent antibiotic, 796, Sept.
Rosillo-Calle, F., The worldwide revival of alcohol fuels, 364, Apr.
— The Brazilian national biotechnology programme 421, May
Rowlands, R., *see* Bailey, C.R.
Roy,C., *see* Paice, M.G.

Sadowski, P.L., *see* Pilacinski, W.P.
Salzman, G.C., Gregg, C.T., Current and experimental methods of rapid microbial identification, 243, Mar.
Sargeant,K., *see* Cantley, M.
Sassenfeld, H.M., Brewer, S.J., A polypeptide fusion designed for the purification of recombinant proteins, 76, Jan.
Schneider, N.M., The explosive growth of biotech, 376, Apr.
Schoemaker, J.M., *see* Marston, F.A.O.
Schultz, J.S., *see* Mansouri, S.
Seeburg, P.H., *see* Gray, G.L.
Sherwood, M., The case of the money-hungry microbe , 606, July
Silva, W.J., *see* Sondahl, M.R.
Simonsen, C.C., *see* Lasky, L.A.
Sofer, G., Chromatographic removal of pyrogens, 1035, Dec.
Solomon, B., Koppel, R., Katchalski-Katzir, E., Use of a specific monoclonal antibody for the preparation of a highly active immobilized carboxypeptidase A, 709, Aug.
Sondahl, M.R., Evans, D.A., Prioli, L.M., Silva, W.J., Tissue culture regeneration of plants in Zea diploperennis, a close relative of corn 455, May
Stuker, E., *see* Prenosil, J.E.
Suddith, R.L., *see* Kohno, T.

Tait, R.C., *see* Edlin, G.
Tautorus, T.E., Townsley, P.M., Biotechnology in commercial mushroom fermentation, 696, Aug.
Tempe, J., *see* Chantal, D.
Thurston, J., *see* Braman, J.C.
Townsley, P.M., *see* Tautorus, T.E.

Varon, M., *see* Rosenberg, E.
Vary, P.S., *see* Kieselburg, M.K.
Vehar, G.A., Kohr, W.J., Bennett, W.F., Pennica, D., Ward, C.A., Harkins, R.N., Collen, D., Characterization studies on human melanoma cell tissue plasminogen activator, 1051, Dec.
Vovis, G.F., *see* Braman, J.C.

Wallace, J.B., *see* Margaritis, A.
Ward, C.A., *see* Vehar, G.A.
Warren, R.A.J., *see* Gilkes, N.R.
Watanabe, M., U.S. and China embark on industrial and academic joint ventures, 142, Feb.
Weickert,M., *see* Kieselburg, M.K.
Weiner, J., Israel's growing interest in plant biotech, 861, Oct.
White, S., *see* Marston, F.A.O.
White, T.J., *see* Emerick, A.W.
Whittaker, B., Hybrid analytical techniques hold promise, 432 , May
Wilson, T., Hybridomas offer new hope for controlling animal parasites, 22, Jan.
— Engineering tomorrow's vaccines, 29, Jan.
— Mass producing interferon, 219, Mar.
— Patent issues cloud biotechnology's future, 385, May
— Cohen-Boyer: a Brief History, 387, May
— Klausner, A., Computers reveal proteins' mysteries 511, June
— Three-way attack on AIDS virus: vaccines, immune sera, screening, 682, Aug.
— More protein from mammalian cells, 753, Sept.
— Bioreactor, synthesizer, biosensor markets to increase by 16 percent annually, 869, Oct.
— FDA loosens restraints on cell substrates, 842, Oct.
— More money, options for SBIR grants, 847, Oct.
— Klausner, A., Blue-sky and Biotech 84 U.S.A., 849, Oct.
— Continuous cultures without wash-out, 928, Nov.
— *see* Klausner, A.
Windham, W.R., *see* Kerr, T.J.
Winstanley, D.J., *see* Bailey, C.R.
Wolfe, S., Hollander, I.J., Demain, A.L., Enzymatic synthesis of a sulfur-analog of penicillin using the 'cyclase' of Cephalosporium acremonium, 635, July
Wood, L.L., Calton, G.J., A novel method of immobilization and its use in aspartic acid production, 1081, Dec.

Yaguchi, M., *see* Paice, M.G.
Yanchinski, S., UK ag research to reorganize, stress biotech 117, Feb.
— Biotechnology taking root in West Germany, 291, Apr.
— U.K. pushes downstream processing research 406, May
— Fermentech developing protein A process, 667, Aug.
— U.K. sinks it teeth into myco-protein, 933, Nov.
Yokoyama, H., DeBenedict, C., Hsu, W-J., Hayman, E., Bioregulation of lipid and protein synthesis in soybean by 2-diethylaminoethyl-3,4-dichlorophenylether 712, Aug.

Zilinskas, R., Biotechnology in the U.S.S.R., part 1, 610, July
— Biotechnology in the U.S.S.R., part 2, 687, Aug.
Zimmerman, B.K., The international centre for genetic engineering and biotechnology, 55, Jan.
Zoler, M.L., Anti-idiotypic antibodies: a safer way to immunize against AIDS, 923, Nov.

# VOLUME II INDEX


adherent antibiotic, 796, 1009
adhesion, 288,
Adler, Frederick, 674
Advanced Genetic Sciences, 12
AFRC, 117
*Agaricus bisporus*, 696
agriculture, 117, 774, 939
Agrigenetics, 596
AIDS, 682, 923, see also HTLV, LAV
alcohol fuels, 364
alpha amylase, 112
American Type Culture Collection, 1011
anabaena, 740
anaerobic digestion, 143, 851
analytical methods symposium, 786
animal feed, 805
animal husbandry, 149
anti-idiotype, 923
anti-tumor agents, 1021
antibiotics, 63, 635, 796
antibiotic ta, 796
archaebacteria, 845
Argonne conference on waste processing, 845
arthrobacter, 805
aspartic acid, 1081
azolla, 740

*Bacillus megaterium*, 254
bacterial reproduction, 239, 251
bacteriophage, 254
Bartlesville Energy Techology Center, 1005
Battelle Memorial Institute, 1029
Baxter Travenol, 303
beta galactosidase, 441, 520
beta lactamase fusion, 165
Bethesda Research Lab., 589
bio-artificial organs, 131
Biobusiness World Data Base, 566, 733
Biocon, 112
biofilms, 288
biofouling, 288
*Biofuture*, 991
biological warfare, 663, 749
biomass, 111, 434, 441, 696, 783, 805, 851, 933, 1005
bioreactor, 447, 869
bioregulation, 712
biosensor, 885
Biosyntech, 292
Biotech 84 Europe, 592, 592, 594, 665, 693
Biotech 84 USA, 849
Biotechnica International, 1045
Biotechnology and the Law, 991
blood factors, 26, 130
Boots, 388
bovine, 458, 841
bovine papillomavirus, 356
bpv-metallothionein, 753
Brazil, 421
brewing, 839
Britain, 117, 388, 406, 508, 667, 850
Bulgaria, 750

CAD (computer aided design), 29, 511, 512, 791, 875
cadmium, 382
calf prochymosin, 800
Canada, 1016
cancer research, 118, 227, 541, 848, 1096
carboxypeptidase, 709
catalyst, 549
cell culture, 928
cell culture depository, 850
Celltech, 388, 1021
cellular enhancer, 753
cellulase, 259, 592
*Cellulomonas fimi*, 259
cellulosics, 1005
*Cephalosporium acremonium*, 635
Cetus, 165
Charing Cross Conference, 146
chemostats, 251
China, 142
cholera vaccine, 334, 345
chromatography, 41, 432, 777, 957, 1035
citobacter, 382
clavulanic acid, 808
clinical test, 227
coal gasification, 935
Cohen-Boyer patent, 385, 387, 849
commercialization, 499, 616, 693, 1007
computers, 837, 945, 1022
Congress, U.S., 576, 1000
continuous cell culture, 842
copyright, 138
corporate development, 844
cytophaga, 1009

Damon, 733, 1005
data bank, 338
data bases, 945
dcp-ta, 712
dehydration-rehydration vesicles, 979
Demuth, Christopher, 502
dentistry, 116
DHFR amplification, 753
diazotrophs, non-leguminous, 967
DNA Plant Technology, 455
DNA probe, 589
DNA synthesis, 445, 694, 869
downstream processing, 41, 406, 555, 623, 957
drug delivery, 979

*Escherichia coli*, 63, 81, 104, 259, 356, 520, 891, 045, 1081
electricity, generation, 921
electrophoresis, 2-dimensional, 1011
embryo transplant, 149
endoglucanase, 535
enhancers and eukaryotic gene, 173
environment, 200
Enzo Biochem, 589
enzyme membrane immunoassay, 349
ethanol, 434, 592, 839
ethanol tolerance, 560
executives, 303
export regulation, 280, 737
expression, 161

FDA, 842
US federal involvement, 22, 232, 236, 396
federal grants, 200
feedstock, 935
fermentation, 555, 560, 606, 623, 665, 667, 777, 839, 47
fermentation engineering hbk, 475
fermentation, monitoring, 936
Fermentech Ltd., 667
fermentor, 447, 891
fermentor design, 928
fertilizer, 110, 586, 740
finance, 16, 22, 61, 210, 296, 332, 619, 674, 676, 679, 74, 861
Finland, 592
firms, plant genetic engineering, 1017
food, 933, 936
forecast, financial, 104
forest biotechnology, 673, 763
free release, 10, 12, 204, 728, 832, 1016
fuel, 434, 851
fuel cells, 921, 935
fundamentals of nitrogen fixation, 821
funding, 396, 603, 847
funding, regional, 1017
fungi, 933, 936

Gatlinburg symposium, 783
gene expression, regulation of, 1045
gene marker, 520
gene transfer, 1012
Genentech, 161, 458
general, 488
genetic engineering of plants, 721
Germany, 291, 292
gliding bacteria, 1009
glucose, 885
glycoprotein, 8
glycoprotein D, 527
Gore committee, 576
grants, 22, 376, 847

heat stablity, 112
hemoglobin, 130
hepatitis, 38
herbicide resistance, 939
herpes, 527
HPLC, 777, see chromatography
HTLV, 682, 848, see also AIDS, LAV
human chorionic gonadotrophin, 398
human growth hormone, 161
hybridoma, 22, 338, 743
Hybritech Clinical Partners, 750

ICI, 388, 606
immobilization, polyazetidine, 1081
immobilized enzymes, 709
Immuno Modulators Laboratories, 841
immunoassay, 349
Imreg, 671
indigenous fermented foods, 364
Industrial Biotechnology Association, 10, 210, 1015
inositol lipid, 541
insect control, 1017
instrumentation, 432
intellectual property law, 138, 192, 385, 387

Inter-Yeda, 672
interferon, 214, 219, 227, 318, 458, 672, 841
International Center for Genetic Engineering and Biotechnology 55, 61
international growth, 200
international trade, 327
investment, 332
Ireland, 112, 929
Israel, 672, 733, 739, 861

Japan, 7, 13, 115, 307, 318, 323, 327, 488, 598, 603, 50, 849, 912, 1041

Katchalski-Katzir, E., 739
Kucewicz, W., 749

lactose, 594
lambda phage, 251, 1045
LAV, 682
law, 5, 192
Legionnaire's disease, 0000
Leningrad conference, 739
leukemia, 227
licensing, 849
lignin, 111, 805
liposomes, 146, 979
lysobacter, 1009

mammalian cell culture, 753, 842
management changes in plant genetic engineering firms, 1017
manufacturing, 616
marine, 212
market prospects for biotechnology, 104
marketing, 38, 499, 512
marketing, international, 102
Maryland, University of, 212
masonry, 757
McGill University, 124
media, 583
media coverage, 1096
medicine, 146
membrane, 349
methanogens, 845, 851
methanol, 434
Methods in Enzymology Vol. 100-1, 86
Michigan Biotechnology Inst., 673
microbe identification, 243
microcomputers, 945, 1022
microfiltration, 891
MITI, 307, see Japan
modeling, 511, 512, 791
monoclonal antibodies, 22, 26, 398, 555, 709, 743
morels, 936
Moscow meeting, 445
Munich congress, 935
mushroom, 696
mutagenesis, 636
myxococcus, 1009

National Research Council, 721
National Science Foundation, 396, *Study of Federal Biotechnology Policy Issues*, 1007
Nature conference, 848
New Delhi conference, 555, 733
nitrogen fixation, 110, 586, 740, 845, 967
non-radioactive DNA probe, 589
Noordwijkerhout meeting, 143, 786
Nova Pharmaceutical, 743

Office of Management and the Budget, U.S., 502
oligonucleotide, 636
oligosaccharide, 8
oncogenes, 118, 541, 848
Osaka conference, 13
OTA (U.S. Office of Technology Assessment), 61, 232, 236
Owens-Illinois, 549

Partners Research Enterprise, 479
penicillin, 635
personnel, 759
pest control, 22, 408, 415
phaseolin, 596
Phillips Petroleum, 853, 1005
Pittsburgh conference, 432
planning, 616
plant agriculture, 596
plant breeding, 1017
plant genetic engineering, 702, 721, 861, 939
plant infectious agents, 86, 202
plant tissue culture, 73, 203, 455, 673, 763, 861
plasminogen, 628
pollution control, 757
Porton International, 849
pre-public investment, 100
pregnancy test, 398
preproinsulin fusion, 165
process control, 786
production systems, 219, 616, 1085
prorennin, 800
prostheses, 131
protein A, 667
Protein Databases, Inc., 1011
protein expression, 81
protein purification, 76
protein synthesis, 29, 76, 81, 445, 511, 512, 623
Provesteen, 853
Pruteen, 606, 665
*Pseudomonas aeruginosa*, 161
*Pseudomonas syringae*, 10, 12, 204
pTi Bo542, 702
public relations, 494, 583, 734, 837
purification, 41, 76, 623, 800, 1011, 1035
pyrogens, removal of, 1035

R&D, 610
R&D budget, 603
R&D funding, 672, 676, 679
R&D, contract, 1029
RAC (Recombinant DNA Advisory Committee), 204, 1012
RDLP (research and development limited partnerships), 10, 676
receptors, 541
regional development, 287, 929
regulation, 280, 327, 342, 415, 502, 576, 598, 737, 1000, 1012, 1015
regulation, Canadian, 1016
research institutes, 1029
retrovirus, 682
Rifkin, Jeremy, 10, 12, 204, 728, 832, 849, 1012
risks, 1007
RNA, 791
RNA secondary structure, 791
robotics, 837
root cells, 73

*Saccharomyces cerevisiae*, 847
Sankyo, 1021
SBIR (Small business innovation research) loans, 22, 47
scale up, 109, 875
*Schizopyllum commune*, 535
self-pollination, 1017
separation, 1011
sequence analysis, 1022
SGM conference, 508
shake-outs, 104
single-cell protein, 586, 606, 853
site-specific mutagenesis, 636
Society for General Microbiology, 508
software, genetic analysis, 1022
solubilized prochymosin, 800
soybean, 712
spectroscopy, 432
SRI International, 1029
strategies, commercial, 1041
*Streptomyces*, 63, 808
*Streptomyces clavuligerus*, 808
Sungene, 203

technology transfer, 55, 142, 737
*The Gene Age*, 173
Ti plasmid, 702
tissue culture, 73
tissue plasminogen activator, 1051, 1058
tobacco, 596
tooth enamel, 116
trading companies, Japanese, 1041
training, 303, 672, 759
Trans World Genetics, 115, 844
*Trichoderma reesei*, 535
Tulane University, 671
two-phase systems, 839

UGEN (University Genetics), 115, 844, 849
UNIDO, 55, 61
University of Pennsylvania, 479
university-industry relations, 61, 124, 656, 671, 72
urokinase, 628
US-Japan cooperation, 323
USC, 116
USDA plant gene center, 750
USSR, 610, 663, 672, 687, 739, 749

vaccine, 29, 38, 334, 345, 527, 923
venture capital, 674
veterinary, 22, 149, 841

waste, 592, 594
waste water, 143
Watson, J.D., 118
whey, 441, 592, 594
wood by-products, 111
Worldwide Directory 1983/1984, 475

yeast, 847

*Zea mays*, 203, 455